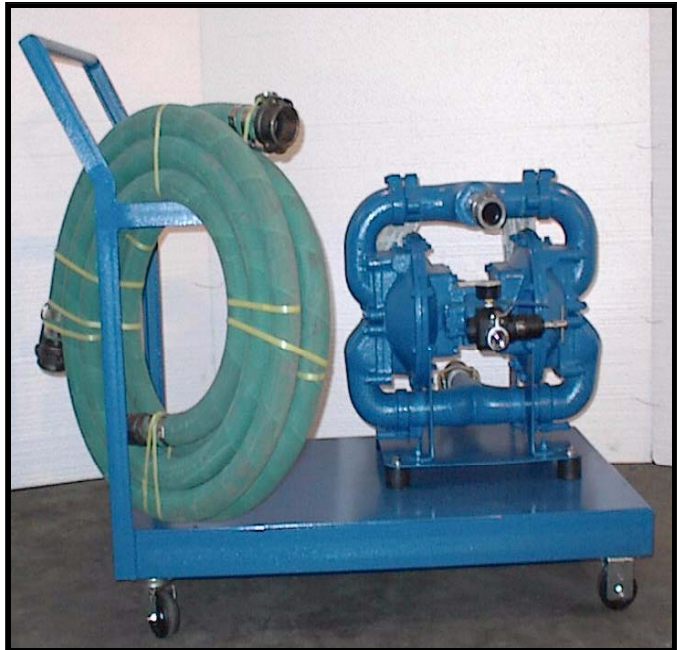


# MART Wastewater Transfer Pump, Cart & Hose assembly

## SIMPLY THE BEST PUMP FOR THE JOB

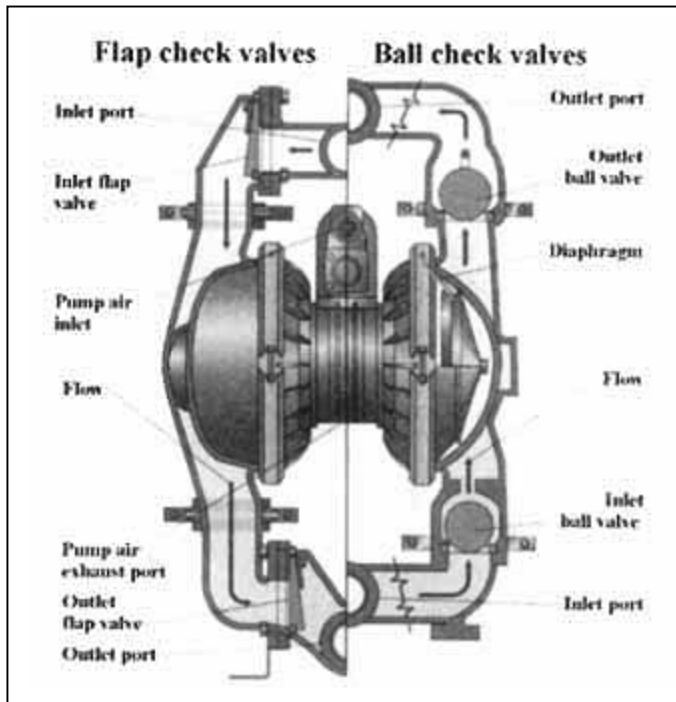
- Chemical resistant high heat hoses for transferring liquids. Designed for suction without collapsing.
- Cast iron rugged dual diaphragm pump mounted with isolation dampers
- Quick disconnect hose fittings on pump and hoses
- Pump mounted on Cart assembly and casters for easy movement to the job site
- Integral Hose storage rack makes neat package when job is done
- **Pumps viscous materials** Even heavy or solids-laden materials can be pumped. The MART Diaphragm Pump moves everything from water to peanut butter. FLAP valve diaphragm pumps are designed to pump sludge, mud, slurry, sewage and other thick liquids that have the ability to flow
- Flap valve pump won't clog even with 2" diameter solids
- Pump can run dry without damage
- Excellent suction and pumping ability for thick heavy slurries and is self priming
- Pump can be "deadheaded" with out damage. Excessive back pressure stops pump without damage. No need for expensive bypass systems or pressure relief valves. Pump simply stops operation until discharge opens.
- Simply Throttle valve to regulate the discharge flow rate
- Easy to use, simply powered with compressed air
- **Seal less, with no motors** These air-driven pumps, with no motors, seals or packing to leak, are environmentally friendly
- Handles many fluid transfer operations in the plant.



  
Arcus Corporation dba:  
MART Tech Services

## The Flap Valve Pump Vs a Centrifugal pump

The MART sludge pump is quite capable of handling the grease load in your machine. It is not a centrifugal pump. It is a FLAP valve diaphragm pump which is designed to pump sludge, mud,



slurry, sewage and other thick liquids. The pump can pass a 2" diameter solid with out jamming or stalling. A diaphragm pump works much like a heart with two valves. One opens on the suction stroke to let fluid in. On the discharge stroke the inlet valve closes and the discharge opens. These pumps are much more appropriate for the work of pumping used wash solutions than a centrifugal type pump. A centrifugal pump relies on a spinning impeller that all the fluid must pass through. The rotation provides the pumping effect. Impellers have small openings that can clog easily and therefore the system must have suction screens to protect the pump. A Centrifugal pump's main advantage is the ability to create high pressure. High pressure is not something required to pump out a washing machine. Another disadvantage of the centrifugal is its ability to suck effectively. All centrifugals require POSITIVE pressure at the suction eye of the impeller to prevent cavitation. The diaphragm pump is 2 or 3 times better at sucking than the centrifugal

pump. Many people hope to find a less expensive option for pumping sludge and waste materials but we have found every other pump to be lacking. We use flap valve pumps exclusively in our own shop for pumping wastewater.

### MART Transfer Pump, Hoses and Cart assembly:

#### Specifications:

Two inch diameter flap valve air operated diaphragm pump mounted on cart with swivel casters and brakes. Has fifteen foot inlet hose and fifteen foot outlet hose with 1.5 inch male and female quick disconnects to mate with EQ-1 processor. Pump has adjustable flow rate up to 140 gpm.

| Pump Specifications      |                    |
|--------------------------|--------------------|
| Pipe Size:               | 2" / 50mm          |
| Displacement Per Stroke: | .43 gal / 1.60 ltr |
| Max. Flow per Minute:    | 140 gal / 530 ltr  |
| Max. Solids Handling:    | 2" / 50mm          |
| Max. Discharge Pressure: | 125 PSI / 8.6 BAR  |

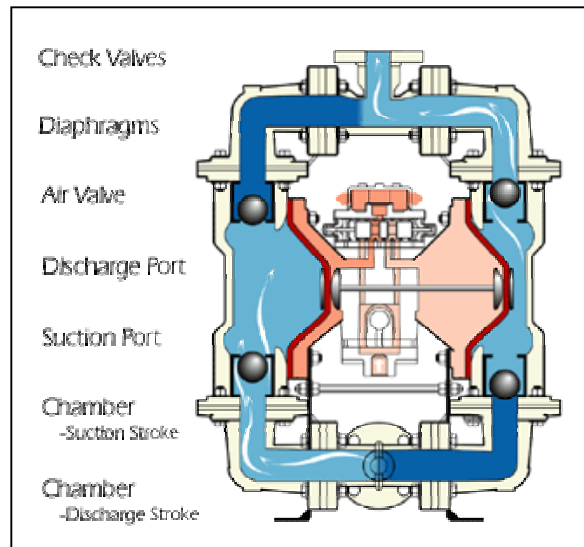
  
 Arcus Corporation dba:  
 MART Tech Services

## Principle of Diaphragm Pump Operation

This flap swing check valve pump is powered by compressed air and is a 1:1 pressure ratio design. It alternately pressurizes the inner side of one diaphragm chamber, while simultaneously exhausting the other inner chamber. This causes the diaphragms, which are connected by a common rod, to move endwise. Air pressure is applied over the entire surface of the diaphragm, while liquid is discharged from the opposite side. The diaphragm operates under a balanced condition during the discharge stroke, which allows the unit to be operated at discharge heads over 200 feet (61 meters) of water head. Since the diaphragms are connected by a common rod,

secured by plates to the center of the diaphragms, one diaphragm performs the discharge stroke, while the other is pulled to perform the suction stroke in the opposite chamber. For maximum diaphragm life, keep the pump as close to the liquid being pumped as possible. Positive suction head in excess of 10 feet of liquid (3.048meters) may require a back pressure regulating device. This will maximize diaphragm life. Alternate pressuring and exhausting of the diaphragm chamber is performed by means of

an externally mounted, pilot operated, four-way spool type air distribution valve. When the spool shifts to one end of the valve body, inlet air pressure is applied to one diaphragm chamber and the other diaphragm chamber exhausts. When the spool shifts to the opposite end of the valve body, the porting of chambers is reversed. The air distribution valve spool is moved by an internal pilot valve which alternately pressurizes one side of the air distribution valve spool, while exhausting the other side. The pilot valve is shifted at each end of the diaphragm stroke by the diaphragm plate coming in contact with the end of the pilot valve spool. This pushes it into position for shifting of the air distribution valve. The chambers are manifolded together with a suction and discharge flap-type check valve for each chamber, maintaining flow in one direction through the pump.



  
Arcus Corporation dba:  
MART Tech Services